



Climate Adaptation Program

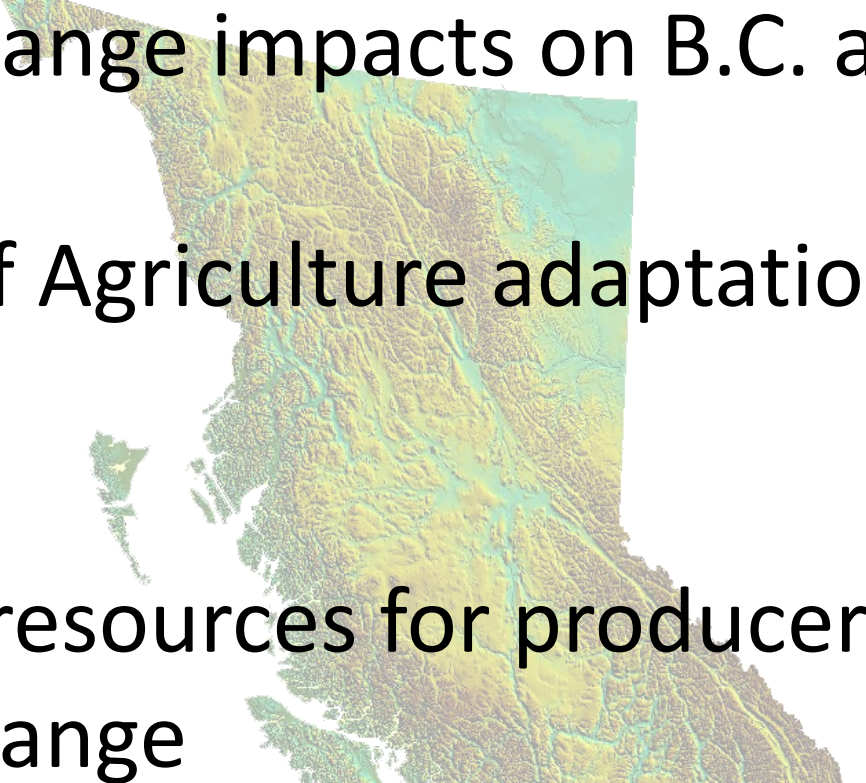
Presentation to 2015 KPU Small Farm Sessions



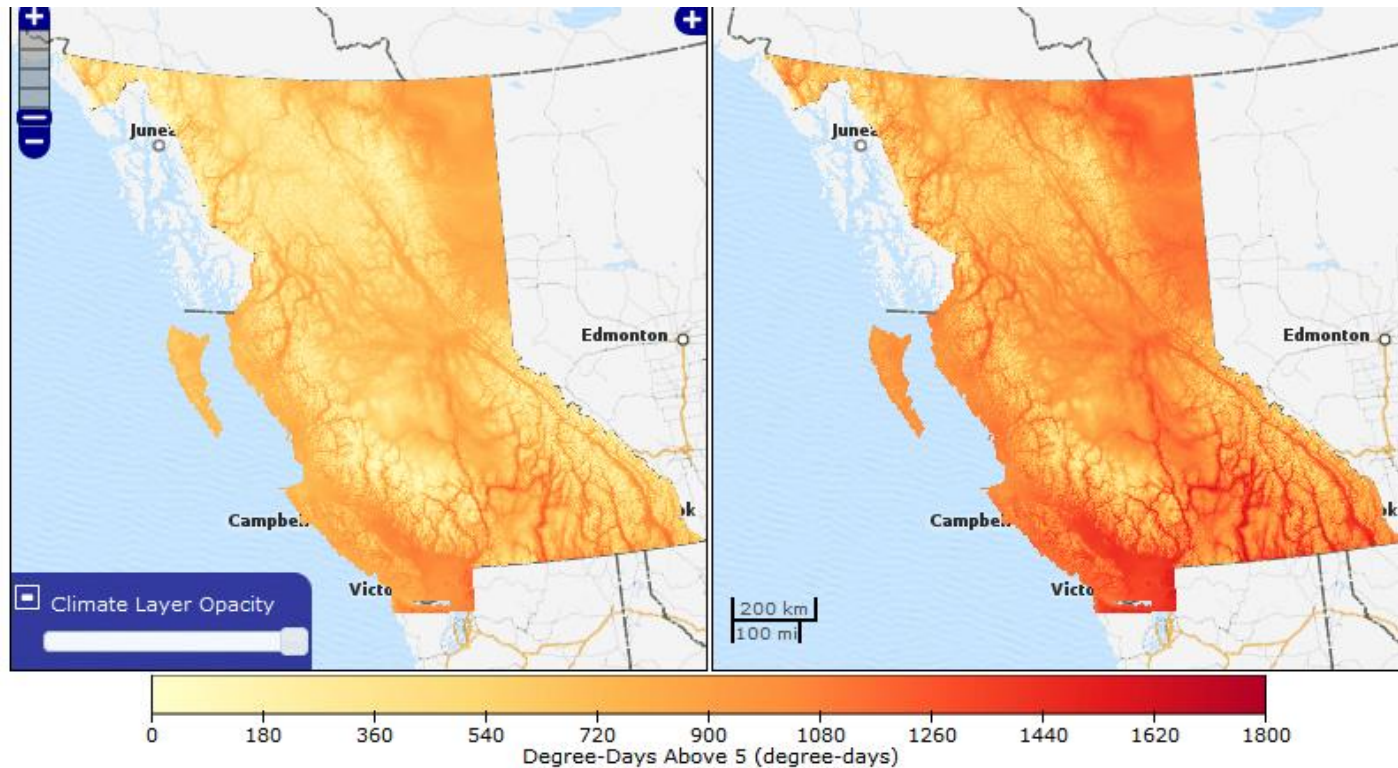
Dieter Geesing, B.C. Ministry of Agriculture
February 13, 2015



Outline

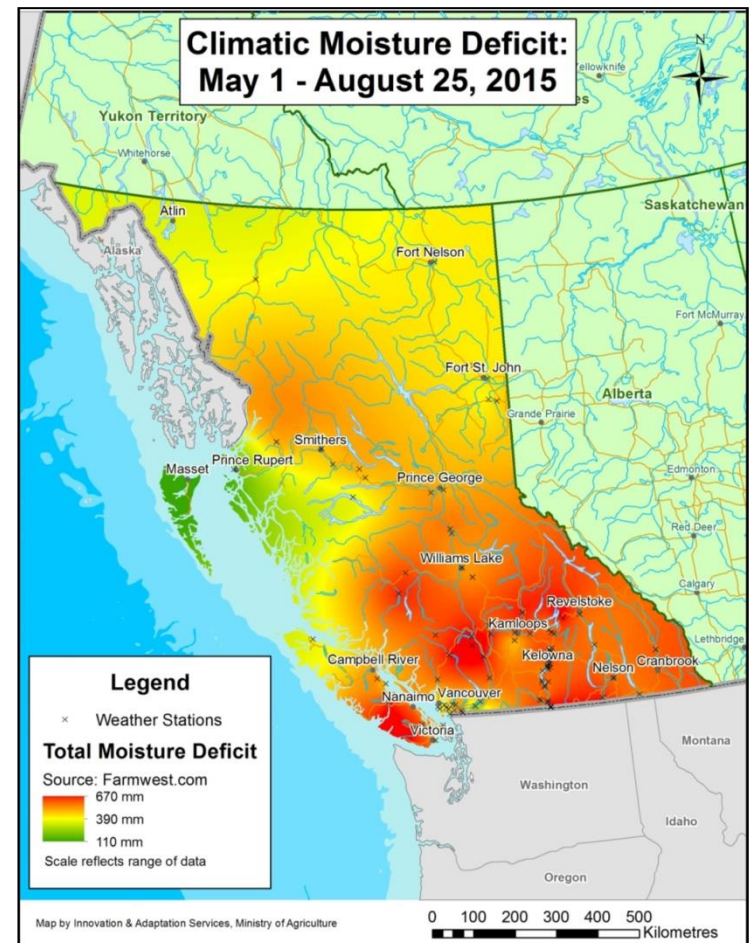
- 
1. Climate change impacts on B.C. agriculture
 2. Ministry of Agriculture adaptation program
 3. Tools and resources for producer adaption to climate change

Climate Change Impacts in BC



Increasing variability & extreme conditions

- More summer “warm days”
- Increasing extremely hot days
- Increasing intensity and magnitude of extreme rainfall
- Drier conditions in the summer





Climate Change Impacts for the South Coast of B.C.

- **B.C.'s climate has changed over last 100 years:**
 - 0.8°C average warming
 - +220 Growing Degree Days
 - 14% increase in annual precipitation
 - 4 cm sea level rise, 16 cm for extreme high water
- **Changes will accelerate**
 - Average temperature could rise another 1.7°C by 2050
 - 1.2 metre sea level rise by 2100 (Fraser delta)



Delta Temperature Projections

	2020s	2050s
Average Annual Temperatures	+1°C	+1.7°C
Frost Free Days	+13	+22
Growing Degree Days	+225	+415

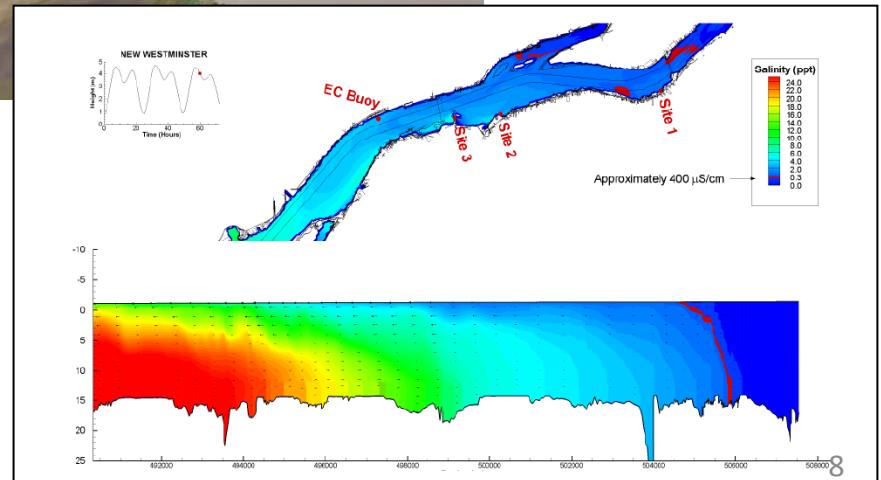


Delta Precipitation Projections

	2020s	2050s
Average Annual Precipitation	+4%	+7%
Summer Precipitation	-7%	-15%
Winter	+3%	+6%
Snowfall	-22%	-36%

Changing Hydrology

- Potential sea level rise of 1.2 metres by 2100
- Increasing river flows in spring, decreasing flows in summer
- Impacts
 - migration of salt wedge upstream
 - increasing water table and soil salinity



Changing Hydrology (cont'd)

Level 4 drought declared for South Coast and Lower Fraser

'Extremely dry' conditions mean water managers may soon bring in tighter restrictions

CBC News Posted: Jul 15, 2015 1:40 PM PT | Last Updated: Jul 15, 2015 4:41 PM PT

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Watering restrictions mean tickets for Metro Vancouver water hogs

Slide the City in Nanaimo cancelled due to drought



The South Coast and Fraser Valley joined Vancouver Island at Level 4 drought conditions on Wednesday, July 15th. Click for full image. (B.C. Government)

Conditions are so dry in B.C.'s Lower Mainland, Sunshine Coast and the

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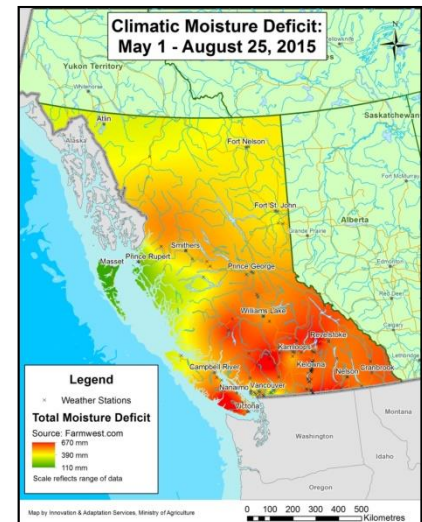
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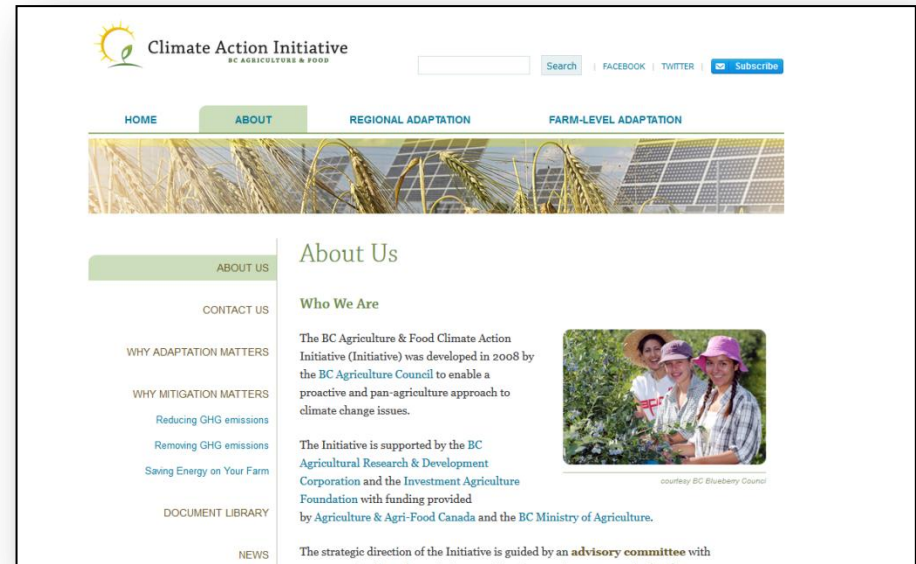


Bishop where charged priest worked asks church-goers to pray for

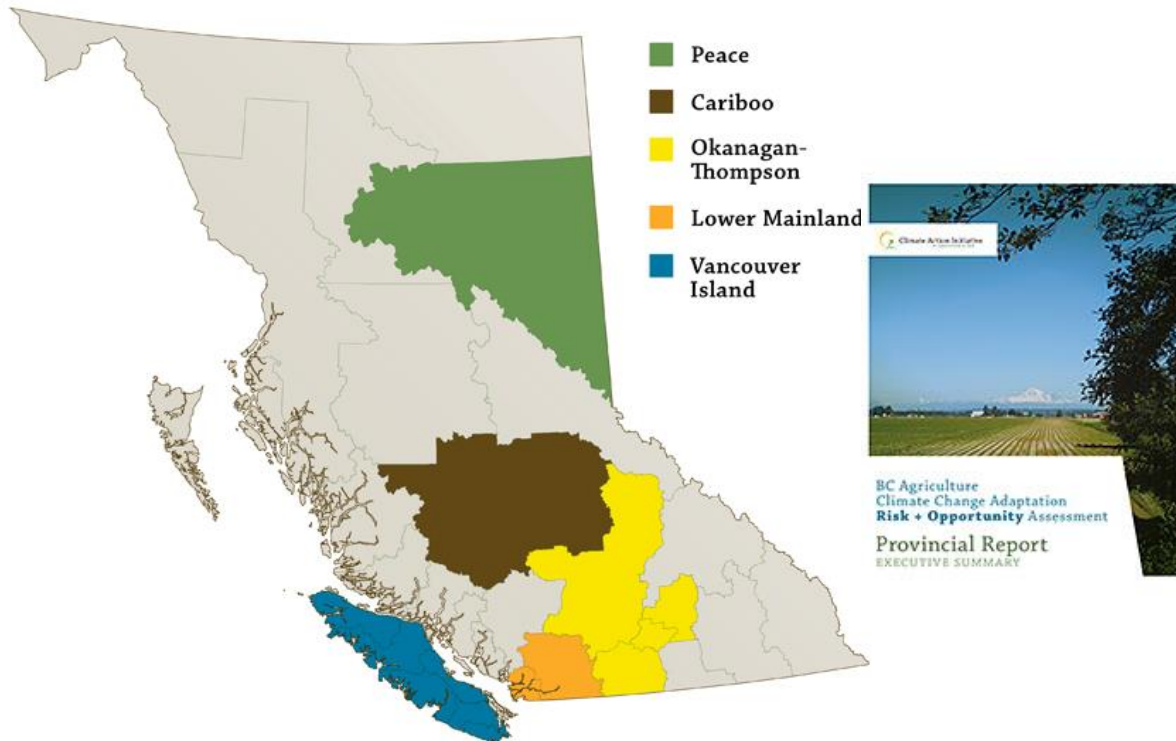


BC Agriculture & Food Climate Action Initiative

- The Ministry of Agriculture funds an industry-led climate adaptation program delivered by the **Climate Action Initiative**
- Approximately \$5.5 million over 2013 - 2018
- Includes support at various levels:
 - **regional** adaptation strategies and projects
 - **farm** practices adaptation series
 - **pilot and demonstration** of adaptation practices



BC Agriculture Climate Change Adaptation Risk & Opportunity Assessment



Six reports

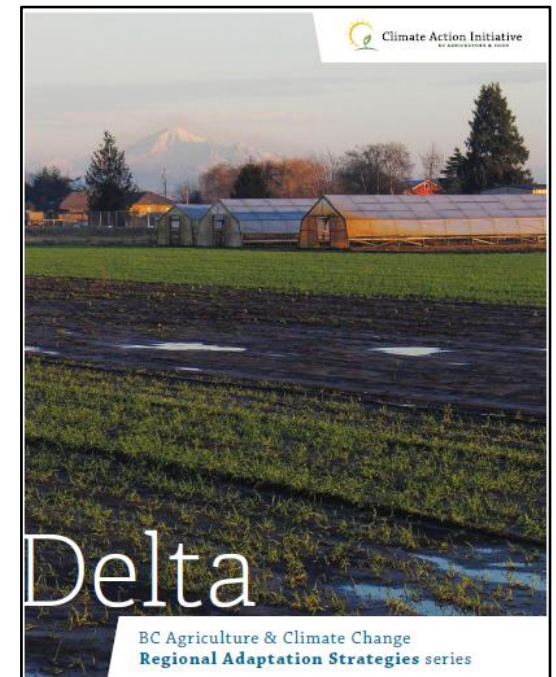


Agricultural Climate Adaptation Regional Adaptation Strategies

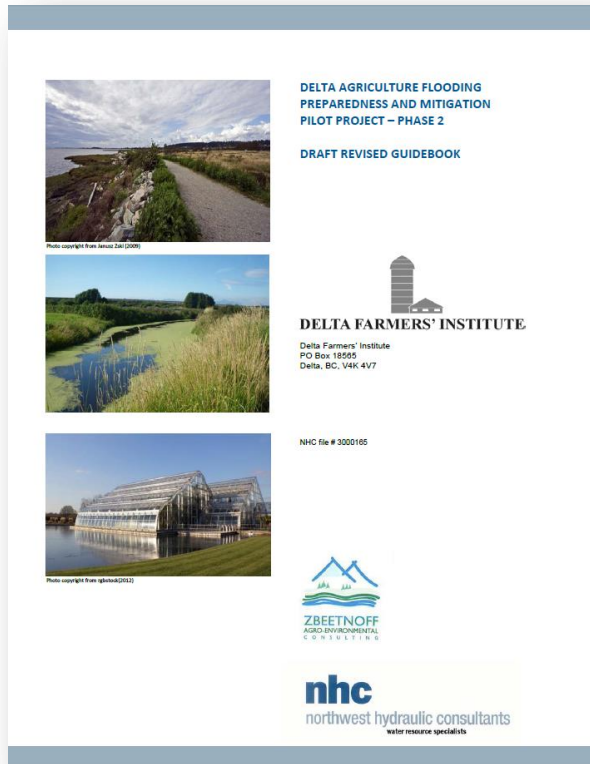


Case Study – Delta's Regional Adaptation Strategy

- regional adaptation strategy (2013)
- implementation projects
 - \$300,000 seed funding for projects related to priority actions



Case Study – Delta's Regional Adaptation Strategy



DELTA AGRICULTURE FLOODING
PREPAREDNESS AND MITIGATION
PILOT PROJECT - PHASE 2

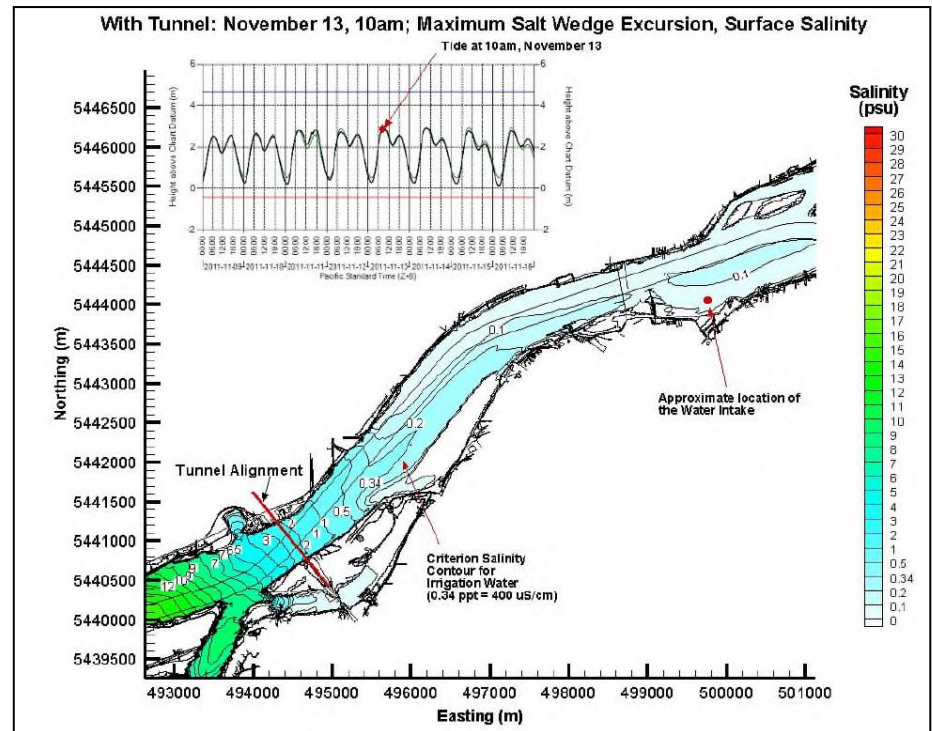
DRAFT REVISED GUIDEBOOK

DELTA FARMERS' INSTITUTE
Delta Farmers' Institute
PO Box 18565
Delta, BC, V4K 4V7

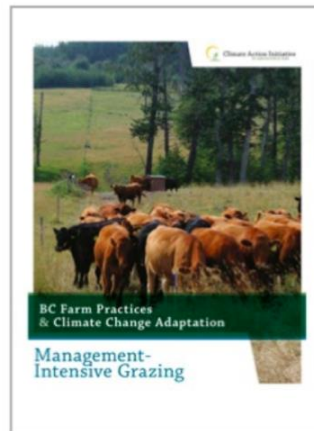
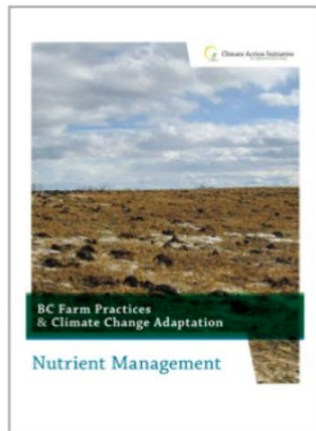
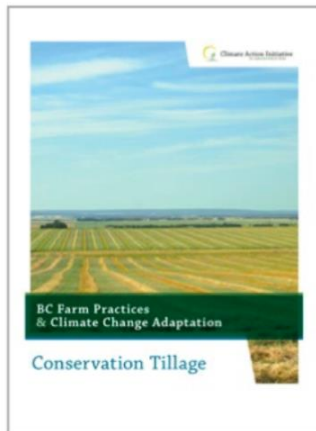
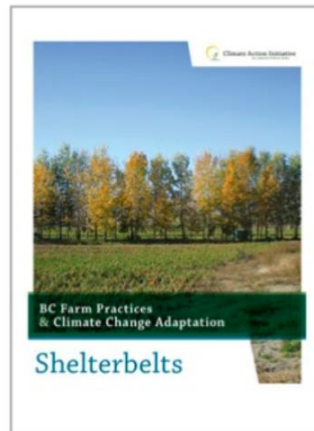
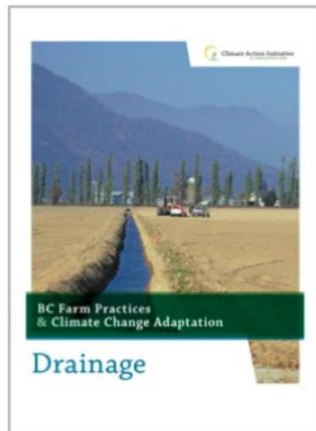
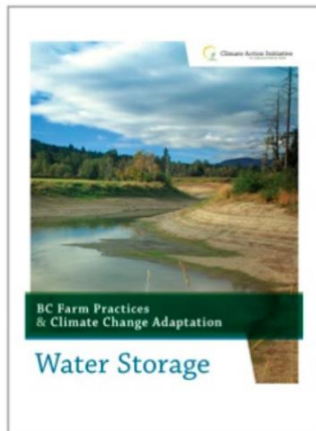
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ZBEETNOFF
AGRO-ENVIRONMENTAL
CONSULTING

nhc
northwest hydraulic consultants
water resource specialists



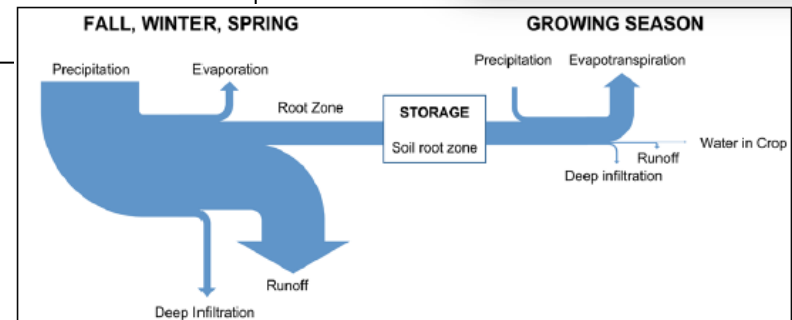
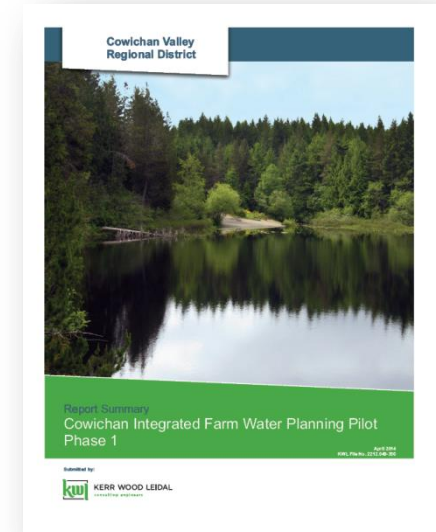
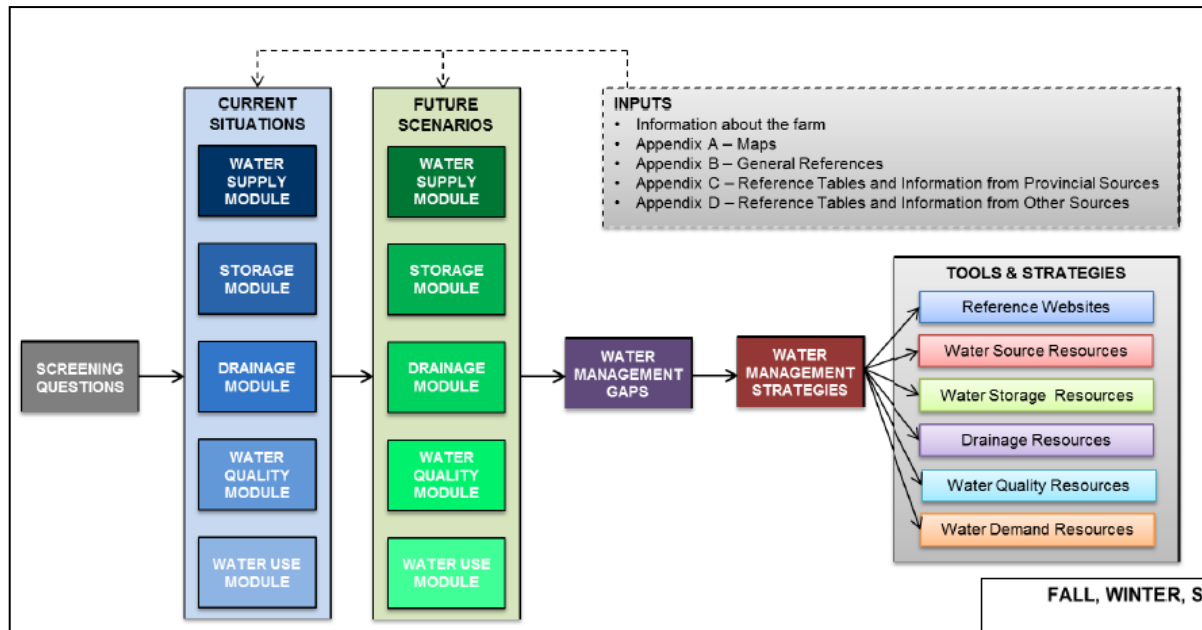
Farm Practices & Climate Change Adaptation Series



- Water storage
- Drainage
- Shelterbelts
- Conservation Tillage
- Nutrient Management
- Management Intensive Grazing

Example

Cowichan Integrated Farm Water Planning Pilot



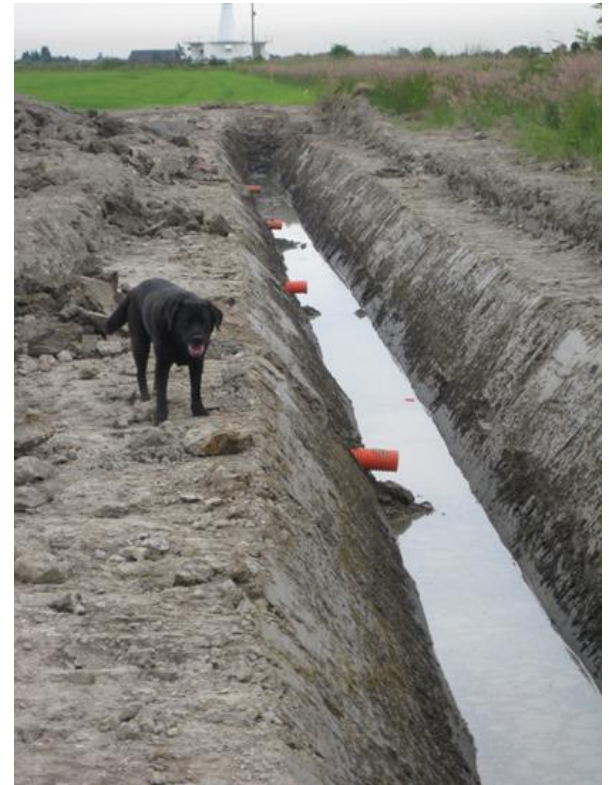


Farm Adaptation Innovator Program

- Adapting to Low Light Growing Conditions using High Tunnel Structures
- Keyline Water Management: Field Research & Education in the Capital Region
- Innovative Management Practices for Resiliency
- Adapting BC horticulture through protected-crop research and demonstration
- Strategies to improve forage yield and quality while adapting to climate change
- Evaluation of thrips damage to potatoes in a changing climate
- Improving on-farm drainage management to reduce the impacts of climate change in Delta, BC
- Economic, social & environmental benefits of riparian rehabilitation as a climate change adaptation strategy
- Demonstrating innovative forage production practices to increase climate change adaptation
- Using Management-Intensive Grazing for Adapting to and Mitigating Climate Change
- Vented Orchard Covers to Protect Cherries Against Rain and Hail

Farm Adaptation Innovator Program Example**Improving on-farm drainage management to reduce
the impacts of climate change in Delta, BC**

- Location: Lower Mainland / Fraser River Delta
- Project Lead: UBC Office of Research Services
- Funding Partners: Growing Forward 2, Agriculture Producers
- Other Partners: Delta Farmers' Institute, Delta Farmland and Wildlife Trust



Farm Adaptation Innovator Program Example 2**Demonstrating innovative forage production practices
to increase climate change adaptation**

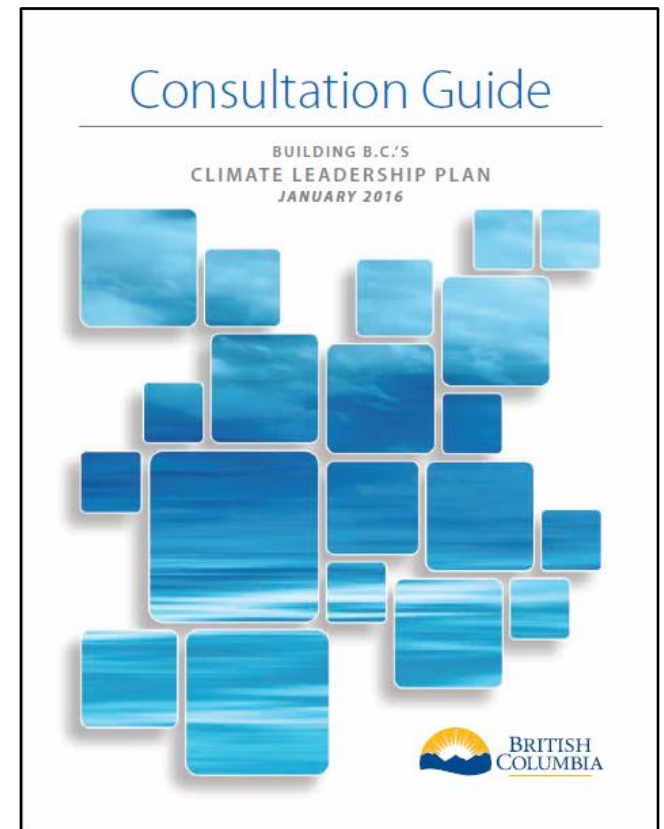
- Location: Central Interior
- Project Lead BC Forage Council
- Funding Partners Growing Forward 2, Nechako-Kitimaat Development Fund Society, Omineca Beetle Coalition
- Other Partners: Nechako Regional Cattlemen, BC Ministry of Agriculture, Agriculture & Agri-Food Canada





B.C. Climate Leadership Plan

- Second consultation period is now open through March 25
- Climate Leadership Team has made recommendations pertaining to adaptation and agriculture.
- Input for the CLP can be made at EngageBC website:
<https://engage.gov.bc.ca/climateleadership>





Resources for agricultural climate adaptation



Climate Action Initiative

BC AGRICULTURE & FOOD




Resources for agricultural climate adaptation (cont'd)



Environmental Farm Plan Program & Beneficial Management Practices Program

- Chapter 12 of Environmental Farm Plan Reference Guide: Climate Change

Emergency Preparedness



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- ▶ Farm Business Management
- ▼ **Emergency Preparedness**
 - Animal Disease Emergency Support
 - Flood Preparedness
 - Livestock Relocation
- ▶ Structures and Mechanization

Emergency Preparedness

Agriculture faces many risks. Emergencies and disasters like wildfires, droughts, floods and disease can occur with little warning and these situations could have devastating consequences.

Local authorities (municipalities and regional districts) are the lead agencies for emergencies within their jurisdiction and are also required to establish and maintain emergency management organizations to develop and implement emergency plans and other preparedness, response and recovery measures. Agricultural producers, like all business managers, need to have a comprehensive strategy to manage the risks they face.

Response Plan

Industry and primary producers are responsible for developing their own emergency response plans in advance of an emergency, including relocating livestock. Local authorities are the lead agencies for emergencies within their jurisdiction and will act first in response to emergencies involving animals where producers require assistance.

Local authorities in British Columbia include municipalities and regional districts. Every local

Report an Emergency

To report an emergency
1-800-663-3456

For provincial Emergency Management contacts, local Emergency Operations Centre or your closest B.C. Emergency Management Office:

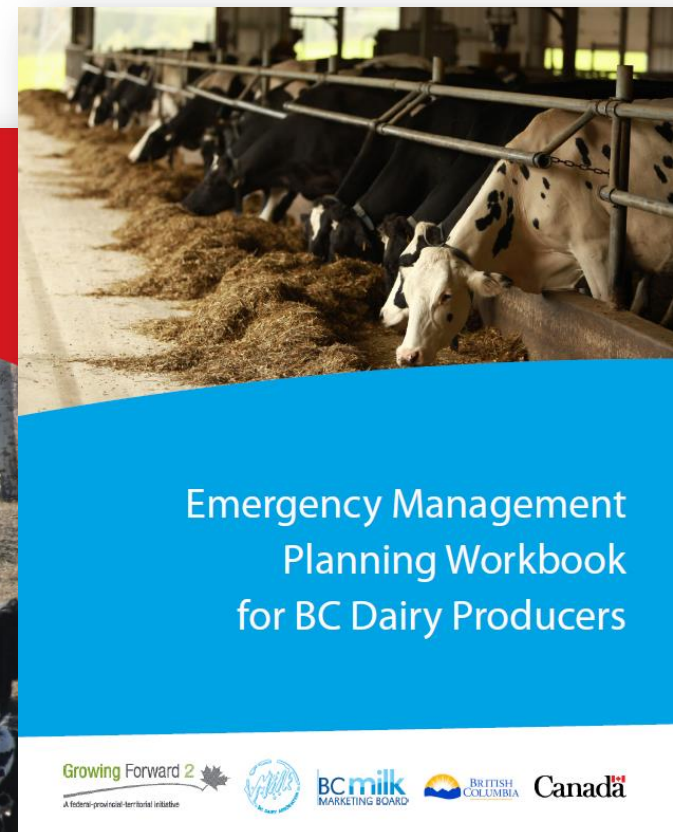
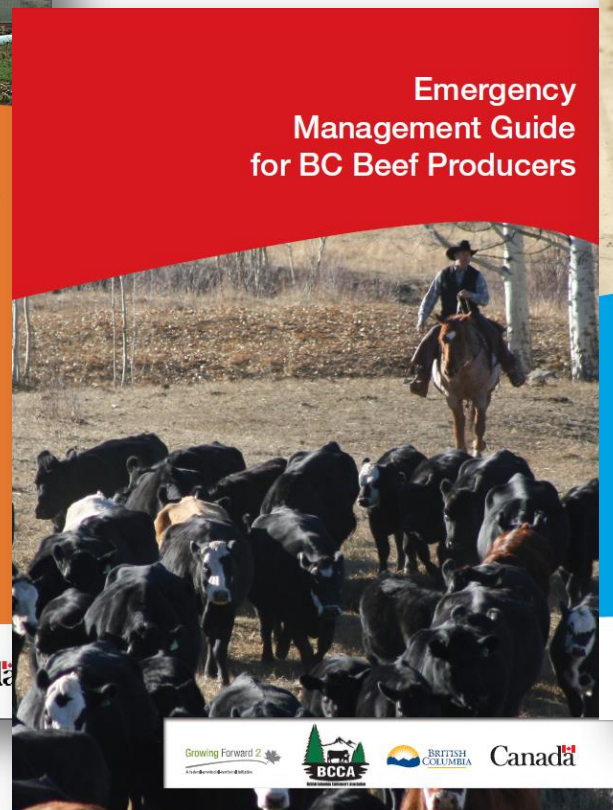
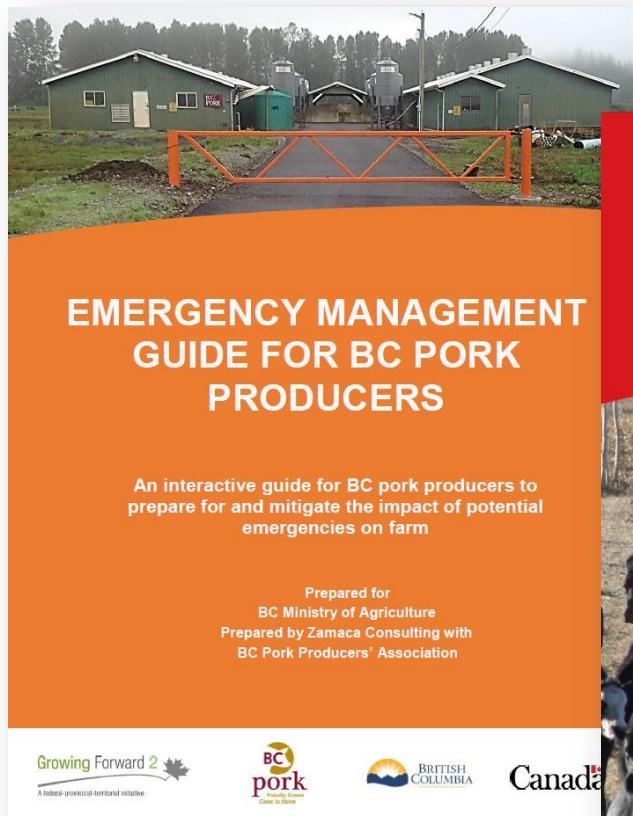
- ▮ [Emergency Management BC](#)
- ▮ [EMBC Office listing](#)

Report a Wildfire

1-800-663-5555 or *5555 on most cellular networks

- ▮ [B.C. Wildfire website](#)

Emergency Preparedness (cont'd)





On-Line Resources

1. B.C. Ministry of Agriculture Climate Action

<http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/climate-action>

2. B.C. Agriculture and Food Climate Action Initiative

<http://www.bcagclimateaction.ca>

3. Environmental Farm Plan Program

<https://www.bcac.bc.ca/ardcorp/program/environmental-farm-plan-program>

4. Pacific Climate Impacts Consort

<http://plan2adapt.ca/tools/planners>

5. B.C. Ministry of Agriculture Emergency Preparedness

<http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/farm-management/emergency-preparedness>

Contacts

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A topographic map of British Columbia, showing the province's outline and internal terrain features like mountains and rivers, rendered in shades of green and yellow.

QUESTIONS?